COMPUTER SCIENCE (PH.D.)

Requirements

Course | Title | Credits
---|---|---
Research Courses
CISC 7070 | Research Methods | 3
CISC 7075 | Research Project | 3
Breadth Requirements
One course from each of Groups I, II, and III | 9
Two CISC electives numbered 7000-8999 | 6
Depth Requirements
Two electives from Group IV | 6
Pedagogy Requirement
CISC 7090 | Doctoral Pedagogy Seminar | 3
CISC 7580 | Computer Science Teaching Experience | 8 (taken four times, for two credits)
Qualifying Exams
Students must complete three qualifying exams (see details below)
CISC 0931 | Ph.D. Qualifying Exam: Computer Science | 0
Dissertation
CISC 0950 | Dissertation Proposal Preparation (taken at least two times, for four credits) | 8
CISC 0960 | Proposal Defense Computer Science | 0
CISC 7999 | Dissertation Research in Computer Science | 24
Total Credits | 70

Dissertation Progress Policies

A student may be placed on academic probation if they do not have an accepted dissertation proposal in at most 5 semesters after passing their qualifying exams, or if they have not completed dissertation in at least 5 semesters after proposal approval.

Qualifying Exam Requirement

Each student must complete a qualifying exam before they are permitted to proceed to develop a dissertation proposal. The exam is satisfied by the student obtaining a grade of A or A- in at least one course from specific courses drawn from each of the three groups (I-III), noted below. These courses each include some coursework which focuses on ethically-informed computer science training in the subject area of the course.

Group I: Foundations & Theory

Courses in this group have the CSFT attribute.

Course | Title | Credits
---|---|---
CISC 5200 | Computer Language Theory | 3
CISC 5825 | Computer Algorithms | 3

The following courses in this list are qualifying exam courses and, additionally, have the CSFQ attribute:

Course | Title | Credits
---|---|---
CISC 5200 | Computer Language Theory | 3
CISC 5825 | Computer Algorithms | 3
CISC 7010 | Formal Methods | 3

Group II: Systems & Software

Courses in this group have the CSSS attribute.

Course | Title | Credits
---|---|---
CISC 5550 | Cloud Computing | 3
CISC 5640 | NoSQL Database Systems | 3
CISC 6100 | Software Engineering | 3
CISC 6630 | Wireless Security | 3
CISC 6750 | IoT Forensics and Security | 3
CISC 6935 | Advanced Distributed Systems | 3
CISC 7110 | Advanced Computer Networks | 3

The following courses in this list are qualifying exam courses and, additionally, have the CSSQ attribute:

Course | Title | Credits
---|---|---
CISC 6935 | Advanced Distributed Systems | 3
CISC 7110 | Advanced Computer Networks | 3

Group III: Informatics & Data Analysis

Courses in this group have the CSID attribute.

Course | Title | Credits
---|---|---
CISC 5352 | Financial Programming and Applications | 3
CISC 5700 | Cognitive Computing | 3
CISC 5790 | Data Mining | 3
CISC 5800 | Machine Learning | 3
CISC 5950 | Big Data Programming | 3
CISC 6000 | Deep Learning | 3
CISC 6525 | Artificial Intelligence | 3
CISC 6910 | Data and Information Fusion | 3

The following courses in this list are qualifying exam courses and, additionally, have the CSIQ attribute:

Course | Title | Credits
---|---|---
CISC 5800 | Machine Learning | 3
CISC 6525 | Artificial Intelligence | 3
CISC 6910 | Data and Information Fusion | 3

1 CISC 7090 Doctoral Pedagogy Seminar, CISC 7580 Computer Science Teaching Experience, and CISC 7999 Dissertation Research in Computer Science may not fulfill this requirement.

Updated: 11-04-2021
Group IV: Advanced Topics

Courses in this group have the CSAT attribute.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CISC 6210</td>
<td>Natural Language Processing</td>
<td>3</td>
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<td>CISC 6352</td>
<td>Advanced Computational Finance</td>
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<td>CISC 6376</td>
<td>Software Design Patterns</td>
<td>3</td>
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<td>CISC 6500</td>
<td>Bioinformatics</td>
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<td>CISC 6550</td>
<td>Systems Neuroscience</td>
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<td>CISC 6640</td>
<td>Privacy and Security in Big Data</td>
<td>3</td>
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<tr>
<td>CISC 6700</td>
<td>Medical Informatics</td>
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<td>CISC 6880</td>
<td>Blockchain Technology</td>
<td>3</td>
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<td>CISC 7120</td>
<td>Robotics</td>
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<td>CISC 7510</td>
<td>Computer Vision/Image Recognition</td>
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<tr>
<td>CISC 7650</td>
<td>Cybersecurity Operations</td>
<td>3</td>
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